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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,693	12/14/2001	Karla M. Robotti	10981377-4	3398
7590	12/21/2005		EXAMINER	
AGILENT TECHNOLOGIES, INC. Legal Department, DL429 Intellectual Property Administration P.O. Box 7599 Loveland, CO 80537-0599			GORDON, BRIAN R	
			ART UNIT	PAPER NUMBER
			1743	
DATE MAILED: 12/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

VIV

Office Action Summary	Application No. 10/020,693	Applicant(s) ROBOTTI ET AL.	
	Examiner Brian R. Gordon	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10-14-05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-43, 46, 47 and 49-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-43, 46-47, 49-50, 52-69, and 71-72 is/are rejected.
- 7) ☒ Claim(s) 51 and 70 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All . b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments filed October 14, 2005 have been fully considered but they are not persuasive. Applicant asserts Takauchi et al. does not teach a phase reversible material that is stably associated with a high surface area component. In reviewing applicant's specification (specifically pages 9-12), there appears to be no special definition provided for the term "stably associated". Applicant states in the remarks "bonding" is a type of stable association. The examiner agrees that while bonding is an example of a means of achieving stable association, the specification nor claim limits the term to requiring bonding. Furthermore, there is no special definition provided in the specification which states that the stable association must be maintained during a specific process or be permanent. The claim does not preclude material from being temporarily stable associated with a component. If applicant intends for the material to limited to such, it should be stated within the claims.

As previously stated, the membrane is considered a high surface area component. While the material may flow within the pores, it does not flow outside the membrane itself. This is equivalent to the limitations of the claim, for the material is stably associated with the membrane.

For the reasons given herein, the examiner hereby maintains the previous rejections.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 37-43, 46-47, 49-50, 52-53, 56-58, 61-69, and 71-72 are rejected under 35 U.S.C. 102(b) as being anticipated by Takauchi et al. US 5,453,333.

Takauchi et al. discloses a porous membrane of a single layer structure formed from a first polymer having a melting point of at least 130 degree C and a second polymer having a melting point of up to 120 degree C, wherein the walls of the pores of the membrane have an amount of second polymer insufficient to block the permeability of the pores under normal operating temperature conditions yet sufficient to do so when the membrane reaches a temperature equal to or greater than the second polymer's melting point.

The second polymer is considered to be equivalent to applicants phase reversible material stably associated and retained on a high surface area within the pores of the membrane. The membrane functions as a valve in the configuration of Figure 3 functioning to control the flow via heat actuation and mixing of the fluids separated in the compartment by the membrane.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 54-55 and 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takauchi et al as applied to claims 37-43, 46-47, 49-50, 52-53, 56-58, 61-69, and 71-72 above, and further in view of Hooper et al. US 5,569,364.

Takauchi does not disclose the second polymer as being N-isopropylacrylamide.

As admitted by applicant, smart gels are conventional and well-known in the art.

Futhermore, Hooper et al. discloses gel particles can be prepared by inverse

suspension, precipitation and suspension polymerization. These particles can be swollen and collapsed by small changes in temperature, pH, and ionic strength of solvent. Other approaches involve the formation of reversible cross-links by use of polyelectrolyte complexes, chelating agents or copolymers of hydrophobic and hydrophilic repeat units. Finally, reversibly solubilized systems may be used to change the viscosity of the media. Hooper provides a list of improved microgels including poly(N-isopropylacrylamide) which may be employed for separation.

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the improved microgels as taught by Hooper et al. as the second polymer within the device of Takauchi in order ensure the proper separation of the fluids is maintained within the compartment.

Allowable Subject Matter

7. Claim 51 and 70 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach nor fairly suggest the high surface area component comprises an array of posts bonded to said at least one surface of said flow path.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. West et al., Reimer, Burns et al., Akashi et al., and Halas et al. and Asher disclose devices (such as valves) including gel materials.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

brg


Jill Warden
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Technology Center 1700